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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,113	01/16/2004	Shigeru Unami	023971-0357	4984

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3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

MAI, NGOCLAN THI

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/758,113

Applicant(s)

UNAMI ET AL.

Examiner

Ngoclan T. Mai

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/3/05</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

2. Claims 1, 2, 4-5, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Arvidsson et al (U.S. Patent No. 6,120,575, art of record)

Arvidsson et al. disclose a sintered product formed by compacting agglomerated powder of fine base powder consisting essentially of iron that has particle size essentially less than 75 micron and 0.4% graphite and sintering the compacted agglomerated powder at 1250 C for 45 minutes in N₂/H₂ atmosphere, col. 1, lines 19-21, col. 2, lines 19-27 and col. 3, lines 31. While Arvidsson et al. do not specifically teach the size of the sintered metal particle forming the sintered structure having the claimed maximum particle size, the sintered product taught by Arvidsson et al. would inherently have the claimed maximum particle size because the reference's sintered product is produced by utilizing the same metal particle and compacting and sintering at the same or similar pressure and temperature as disclosed by the applicant, paragraph [0030], [0041] and TABLE on page 13.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)."

Regarding claims 2 and 6, Arvidsson et al disclose the claimed limitation in col. 2, lines 27-30.

Regarding claims 4 and 8, Arvidsson et al disclose the wear resistant material, i.e. sintered product, can be used in heavy-duty diesel engines (col. 1, lines 7-12), which broadly includes internal combustion engine.

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3. Claims 1-13, 15-16, and 21-25 are rejected under 35 U.S.C. 102(b) as being unpatentable over Jukiki et al (U.S. Pat 6,332,904)

Fujiki et al. disclose a an iron base sintered compact of high tensile strength and fatigue strength formed by mixing 0.5% graphite, 0.5 to 0.7% zinc stearate as lubricant, alloyed micro powder and mother steel powder, following by compacting and sintering at 1140 C under nitrogenous atmosphere containing 10 wt% of hydrogen. Fujiki et al further teach that the mother steel powder taught can have particle size about 60 to 100 microns (col. 5, lines 33-34) and that the alloyed micro powder can have particle diameter of 15 microns or less (col. 8, lines 46-).

Although Fujiki et al. do not specifically teach the size of the sintered metal particle, the sintered product taught by Fujiki et al. would inherently have the claimed maximum particle size because the reference's sintered product can be produced by employing metal particles having particle size including the size disclosed by the applicant and compacting and sintering at the same or similar pressure and temperature as disclosed by the applicant, see applicant's paragraphs [0030], [0041] and TABLE on page 13 and Fujiki et al., col. 9, 58-67.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)."

Regarding claims 2, 6, 10 and 22, Fujiki et al disclose the claimed limitation in col. 2, lines 25-31.

Regarding claims 3-4, 7-8, 11-12, and 24-25 Fujiki et al disclose the claimed limitation col. 10, lines 18-33.

Claim Rejections - 35 USC § 103

4. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiki et al in view Tsuchida et al.

The difference between the claims and Fujiki et al is that Fujiki et al do not teach compacting the powder mixture while being heated, i.e., warm compaction (claim 18), preheating the die before warm compaction (claim 19), and applying die lubricant to a die before compaction (claim 20).

Tsuchida et al teaches a method for compacting powders for powder metallurgy having high density by compacting a powder mixture containing lubricant in a die that has been preheated and having a lubricant on inner wall surfaces thereof at elevated temperature, col. 4, lines 9-57. Tsuchida et al teaches that the compaction temperature and the temperature to preheat the die are set to be no more than 3 time the melting temperature of the lubricant, col. 5, lines 4-53 and Tables 1 and 2.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the compaction step of Fujiki et al. under conditions as taught by Tsuchida so that a high density of green compact can be obtained. Since zinc stearate has melting temperature 126 C, it would have been obvious to one of ordinary skill in the art that the die of Fujiki et al be preheated at temperature higher than 126 C to facilitate die compaction as taught by Tsuchida et al.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiki et al. in view of Arvidsson et al.

Fujiki et al disclose a method substantially as claimed, the difference between the claim and Fujiki et al is that Fujiki et al do not teach agglomerating the powder mixture to have particle size as cited.

Arvidsson et al teach agglomeration of iron-based powder mixture having particle size less than 75 microns to form agglomerated having particle size between 75 to 150 microns to not only prevent segregation and dusting during handling but also provide good flow, which is necessary prerequisite for industrial production, col. 1, lines 58 –63 and col. 2, lines 19-23.


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Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to also agglomerate the powder mixture of Fujiki et al. in order to have particle size as disclosed by Arvidsson et al. for the noted benefits.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 9:30-6:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ngoclan T. Mai
Primary Examiner
Art Unit 1742

n.m.